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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/731,950	12/10/2003	Woong-Kwon Kim	10125/4132	6763

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Brinks Hofer Gilson & Lione
Post Office Box 10395
Chicago, IL 60610

EXAMINER

NGUYEN, HOAN C

ART UNIT	PAPER NUMBER
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2871

MAIL DATE	DELIVERY MODE
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12/17/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/731,950

Applicant(s)

KIM ET AL.

Examiner

HOAN C. NGUYEN

Art Unit

2871

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 September 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☐ Claim(s) 1-59 is/are pending in the application.
- 4a) Of the above claim(s) 47, 55-59 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-46 and 48-54 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 09/25/2007 has been entered.

Claims 47 and 55-58 withdrawn. Claim 59 is newly added.

Election/Restrictions

Applicant's election with traverse of Species I (claims 1-46 and 48-54; Figs. 5) filed on 10/11/2005 is acknowledged. In non-final action mailed on 12/07/2006, the restriction requirement is considered to be final.

Claim 59 drawn to a liquid crystal display device "wherein one of the red, green and blue color resins of the light shielding color filter patterns has a trench accommodating another of the red, green and blue color resins" as disclosed in Fig. 6 (not originally elected species).

Applicant is required under 35 U.S.C. 121 to elect a single disclosed species for prosecution on the merits to which the claims shall be restricted if no generic claim is finally held to be allowable. Currently, there is no generic claim.

Applicant is advised that a reply to this requirement must include an identification of the species that is elected consonant with this requirement, and a listing of all claims readable thereon, including any claims subsequently added. An argument that a claim is allowable or that all claims are generic is considered nonresponsive unless accompanied by an election.

Upon the allowance of a generic claim, applicant will be entitled to consideration of claims to additional species which are written in dependent form or otherwise include all the limitations of an allowed generic claim as provided by 37 CFR 1.141. If claims are added after the election, applicant must indicate which are readable upon the elected species. MPEP § 809.02(a).

Should applicant traverse on the ground that the species are not patentably distinct, applicant should submit evidence or identify such evidence now of record showing the species to be obvious variants or clearly admit on the record that this is the case. In either instance, if the examiner finds one of the inventions unpatentable over the prior art, the evidence or admission may be used in a rejection under 35 U.S.C. 103(a) of the other invention.

New claim 59 is directed to a species that is independent or distinct from the invention originally claimed for the following reasons: claim 59 is the device claims including the features "*one of the red, green and blue color resins of the light shielding*

color filter patterns has a trench accommodating another of the red, green and blue color resins” that were not originally presented. As originally presented, the examiner has considered and examined only the originally presented claims with the features “plurality of the color filters without forming the trench and are flatten” as Fig. 5 shown in the original election on 10/11/2005.

Since applicant has received an action on the merits for the originally presented invention, this invention has been constructively elected by original presentation for prosecution on the merits. Accordingly, claims 55-58 are further withdrawn from consideration as being to a non-elected invention. See 37 CFR 1.142(b) and MPEP § 812.03.

Applicant is reminded that upon the cancellation of claims of a non-elected invention; the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be a diligently-filed petition under 37 CFR 1.48 (b) and by the fee required under 37 CFR 1.17(h).

Claims 47, 55-59 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected inventions and species, there being no allowable generic or linking claim. Therefore, claims 1-46 and 48-54 are elected.

Since there is no Drawing illustrates the original claims 11-12, 28-31, 40-41 and 51-54, the Drawing Objection is following:

Drawings

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the features of “a second insulating layer between TFT and the light shielding color pattern” and “the third insulating layer between TFT and liquid crystal layer” in claims 11-12, 28-31, 40-41 and 51-54 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered. Applicant must realize that Figs. 7-8 with trench, thus Figs. 7-8 does not belong to the elected species Fig. 5.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as “amended.” If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either “Replacement Sheet” or “New

Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

1. Claims 1, 4-12, 18, 21-31, 35, 37-41 and 48-54 are rejected under 35

U.S.C. 102(b) as being anticipated by **Yamamoto et al. (US6445432B2)**.

Yamamoto et al. teach (Figs. 2-4) a liquid crystal display device comprising:

Claims 1, 18, 35 and 46:

- a plurality of gate lines 3a formed on a first substrate along a transverse direction, each gate line including a gate electrode 3;
- a first insulating layer (gate insulating layer 4) formed on the first substrate to cover the gate lines and the gate electrodes;
- a plurality of data lines 6a formed on the first insulating layer along a longitudinal direction, the data lines defining a plurality of pixel regions with the gate lines and each including a source electrode 6;

- a thin film transistor formed at a crossing region of each of the gate and data lines, each thin film transistor including one of the gate electrodes, a semiconductor layer 5, one of the source electrodes, and a drain electrode;
- a color filter R over the first insulating layer in each pixel region, each color filter having one of red, green and blue colors R/G/B, the color filters having a plurality of drain contact holes exposing the drain electrodes 7;
- a pixel electrode 15 over the color filter in each pixel region, each pixel electrode contacting one of the drain electrodes;
- a common electrode on a second substrate 16, the common electrode facing the first substrate; and
- a liquid crystal layer 20 interposed between the common electrode and the pixel electrodes.
- plurality of transparent layers (color filters) including light shielding color filter patterns filling a space between the thin film transistor and the liquid crystal layer 20, the light shield color filter color patterns including at least two of red, green or blue resins.

wherein

- thickness of the light-shielding color filter patterns is equal to or less than a thickness of the color filter.

Claims 4 and 21:

- each thin film transistor includes a channel on the active layer between the source and drain electrodes.

Claims 5 and 22:

- the light-shielding color filter patterns are formed of the same material as the color filters.

Claims 6 and 23:

- a cell gap between the light-shielding color filter patterns and the common electrode is greater than zero.

Claims 7, 24, 39 and 48:

- the color filters are formed of a photosensitive resin through a photolithography process.

Claims 8, 25 and 37:

- red, green and blue color filters are formed sequentially from the semiconductor layers towards the liquid crystal layer.

Claims 9, 26, 38 and 50:

- each of red, green and blue color filter patterns (at shielding regions) has a thickness smaller than each of red, green and blue color filters (at display regions).

Claims 10 and 27:

- each light-shielding color filter pattern has a red color filter pattern, a green color filter pattern and a blue color filter pattern.

Claims 11, 28-29, 40 and 51-52:

- a second insulating layer between the thin film transistors and the light-shielding patterns and between the first insulating layer and the color filters, wherein the

second insulating layer covers the source electrodes, the drain electrodes and the data lines and wherein the drain contact holes extend through the second insulating layer wherein performing etching an exposed portion of the second insulating layer such that the drain contact holes extend through the second insulating layer to expose a portion of each drain electrode.

Claims 12, 30-31, 40, 52-54:

- a third insulating layer between the color filters and the pixel electrodes, wherein the third insulating layer covers the color filters and the light-shielding color filter patterns, wherein performing etching a portion of the third insulating layer corresponding to the drain contact holes such that the drain contact holes extend through the third insulating layer to expose a portion of each drain electrode.

Claim 45:

- each of the red, green and blue color filters includes a drain contact hole exposing the drain electrode and wherein the pixel electrode contacts the drain electrode through the drain contact hole 50.

Claim 49:

- the light-shielding color filter pattern is formed in the same process step as the color filter.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 2-3, 19-20 and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Yamamoto et al. (US6445432B2)** as applied to claims 1, 4-12, 18, 21-31, 35, 37-41 and 48-54 and in view of Shin (US5825449A).

Yamamoto et al. fail to disclose a liquid crystal display device comprising each semiconductor layer includes an active layer of amorphous silicon and an ohmic contact layer of doped amorphous silicon, wherein the source and drain electrodes are formed on the ohmic contact layer and spaced apart from each other.

Shin teaches (Figs. 2-3) a liquid crystal display device comprising each semiconductor layer includes an active layer of amorphous silicon 4 and an ohmic contact layer 5 of doped amorphous silicon, wherein the source and drain electrodes are formed on the ohmic contact layer and spaced apart from each other for reducing the contact resistance between the active layer and the source/drain regions in the completed device as taught by Shin (col. 1 lines 43-48).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify a liquid crystal display device as **Yamamoto et al.** disclosed with each semiconductor layer including an active layer of

amorphous silicon 4 and an ohmic contact layer 5 of doped amorphous silicon, wherein the source and drain electrodes are formed on the ohmic contact layer and spaced apart from each other for reducing the contact resistance between the active layer and the source/drain regions in the completed device as taught by Shin (col. 1 lines 43-48).

3. Claims 13-17, 32-34 and 42-44 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Yamamoto et al. (US6445432B2)** as applied to claims 1, 4-10, 18, 21-27, 35, 37-39, 45-46 and 48-50 and in view of Song (US6307602B1).

Yamamoto et al. further disclose a liquid crystal display device comprising colors filters covering gate lines.

Yamamoto et al. fail to disclose a liquid crystal display device comprising a portion of each gate line acts as a first capacitor electrode and a second capacitor electrode on the first insulating layer over each portion of the gate line, wherein each second capacitor electrode and portion of the gate line constitute a storage capacitor with the first insulating layer interposed between the portion of the gate line and the second capacitor electrode.

Song teaches (Fig. 4a-5f) a portion of each gate line acts as a first capacitor electrode and a second capacitor electrode 150 on the first insulating layer (gate insulating layer 111) over each portion of the gate line, wherein each second capacitor electrode 150 and portion of the gate line constitute a storage capacitor with the first insulating layer interposed between the portion of the gate line and the second capacitor electrode. Combination of **Yamamoto et al.** and Song (Figs. 4-5 show storage

electrodes covering gate lines) inherences each color filter including capacitor contact hole exposing the second capacitor electrode, wherein the pixel electrode contact the second capacitor electrodes through the capacitor contact holes.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify a liquid crystal display device as **Yamamoto et al.** disclosed with a portion of each gate line acts as a first capacitor electrode and a second capacitor electrode 150 on the first insulating layer (gate insulating layer 111) over each portion of the gate line, wherein each second capacitor electrode 150 and portion of the gate line constitute a storage capacitor with the first insulating layer interposed between the portion of the gate line and the second capacitor electrode for high display quality with preventing shorting between pixel electrodes as Song taught (col. 2 lines 25-34).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to HOAN C. NGUYEN whose telephone number is (571) 272-2296. The examiner can normally be reached on MONDAY-THURSDAY:8:00AM-4:30PM.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Nelms can be reached on (571) 272-1787. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

HOAN C. NGUYEN
Examiner
Art Unit 2871

chn


ANDREW SCHECHTER
PRIMARY EXAMINER